



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,636	03/14/2008	David Wollan	3029-000089/US/NP	3139
27572 7590 03/04/2010 HARNESSE, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER STULII, VERA	
			ART UNIT 1794	PAPER NUMBER
			MAIL DATE 03/04/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,636	<b>Applicant(s)</b> WOLLAN, DAVID	
	<b>Examiner</b> VERA STULII	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 6-8, 10-17 and 19-34 is/are pending in the application.
- 4a) Of the above claim(s) 20-29, 31 and 32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-8, 10-17, 19, 30, 33 and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/10/2006, 11/04/2008, 01/06/2006, 07/06/2006</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Election/Restrictions***

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 6-8, 10-17, 19, 30 and 33-34, drawn to the method of reducing alcohol content and beverage produced by such method.

Group II, claim(s) 20-29 and 31-32, drawn to an apparatus for reducing alcohol content and beverage produced by such apparatus.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the method lacking corresponding technical features of the apparatus.

During a telephone conversation with David P. Utykanski on 02/05/2010 a provisional election was made without traverse to prosecute the invention of Group I, claims 6-8, 10-17, 19, 30 and 33-34. Affirmation of this election must be made by applicant in replying to this Office action. Claims 20-29 and 31-32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Objections***

Claim 31 is objected to because of the following informalities: claim 31 depends from the cancelled claim 1. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 6, 10-12, 15-17, 19, 30, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen (WO 92/08783) in view of Michaels (WO 93/22036).**

In regard to claim 6, Nielsen discloses the method of reducing the alcohol content of an alcohol containing beverage including the steps of:

B. contacting a nanofiltration feed stream comprising a naturally fermented beverage or the microfiltration permeate stream with a nanofiltration membrane, having a molecular weight cutoff of from

Art Unit: 1794

100 to 10,000, under conditions such that the nanofiltration feed stream is separated into a nanofiltration permeate stream which has a lower concentration of aroma and flavor containing compounds, and a nanofiltration retentate stream which has a higher concentration of aroma and flavor containing compounds as compared to the nanofiltration feed stream;

C. contacting a reverse osmosis feed stream comprising the microfiltration permeate or the nanofiltration permeate with a reverse osmosis membrane, which selectively permeates ethanol and selectively retains aroma and flavor containing compounds under conditions, such that the reverse osmosis feed stream is separated into a reverse osmosis permeate stream which is higher in ethanol concentration and lower in aroma and flavor containing compounds, and a retentate stream which is lower in ethanol concentration and higher in aroma and flavor containing compounds, as compared to the reverse osmosis feed stream; characterized in that, either or both of steps

A. or B. must be performed, and if step B is performed the reverse osmosis retentate and the nanofiltration retentate are recombined subsequent to step C (page 7 bottom paragraph-page 8 paragraphs 1-3).

Nielsen does not disclose forming dealcoholized permeate by contacting a first side of an hydrophobic microporous membrane with said raw permeate and contacting a second side of the membrane with a strip solution to extract alcohol therefrom to form a dealcoholised permeate. Michaels discloses a process for reducing the alcohol content of an aqueous mixture comprising the steps of:

- (a) contacting one surface of a microporous hydrophobic membrane with the aqueous mixture;
- (b) contacting the other surface of the membrane with water or a dilute aqueous saline solution. Therefore, Michaels discloses forming dealcoholized permeate by

Art Unit: 1794

contacting a first side of an hydrophobic microporous membrane with said raw permeate and contacting a second side of the membrane with a strip solution to extract alcohol therefrom to form a dealcoholised permeate.

Since Nielsen discloses dealcoholization of a naturally fermented beverage, where nanofiltration permeate is contacted with reverse osmosis membrane to form the first solution containing aroma and flavor with lower alcohol content and a second solution with higher alcohol content, and Michaels discloses reduction of alcohol content by (a) contacting one surface of a microporous hydrophobic membrane with the aqueous mixture; and (b) contacting the other surface of the membrane with water or a dilute aqueous saline solution, one of ordinary skill in the art would have been motivated to modify Nielsen in view of Michaels and to substitute step (C) disclosed by Nielsen with steps (a) and (b) disclosed by Michaels for the same purpose and function, i.e. in order to form dealcoholized solution with high aroma and flavor content and another solution with high alcohol content. One of ordinary skill in the art would have been motivated to do so, since both references disclose forming the first solution containing aroma and flavor with lower alcohol content and a second solution with higher alcohol content. One of ordinary skill in the art would have been motivated to do so, since both references disclose similar methods of removal of alcohol from the naturally fermented beverage.

In regard to claim 10, Nielsen discloses wine which has higher concentration of flavor and aroma (page 8 paragraph 1). One of ordinary skill in the art would have been motivated to select membrane parameters that would

Art Unit: 1794

lead to a maximum amount of volatile components (flavor and aroma) in order to produce a lower alcohol beverage while still retaining the aroma and flavor of the original beverage as disclosed by Nielsen (page 1 bottom paragraph).

In regard to claim 11, Nielsen discloses treatment of wine (page 9 paragraph 3). Michaels also discloses treatment of wine (page 7 Example 3).

In regard to claims 15-17, Nielsen and Michaels do not disclose specific alcohol content of the dealcoholized fractions. Since both Nielsen and Michaels disclose reduction of an alcoholic content of the fermented beverages by forming dealcoholized fractions, and Michaels discloses that rates of transfer through the membrane alcohol and flavors/fragrances vary through manipulations of the extracting solution (stripping solution), one of ordinary skill in the art would have been motivated to adjust membrane parameters and to manipulate extracting solution as taught by Michaels, in order to achieve desired level of alcohol removal and flavors/fragrances transfer.

In regard to claim 19, Nielsen and Michaels do not disclose determining if the alcohol content of the dealcoholised beverage is at or below a predetermined level and continuing to perform removal of alcohol from the beverage while the alcohol content of the dealcoholised beverage is above said predetermined level. In any case, one of ordinary skill in the art would have been motivated to verify the alcohol content of the low alcohol beverage and to further performed method steps as taught by Nielsen and Michaels until the desired alcohol content of the fermented beverage is reached.

**Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen (WO 92/08783) in view of Michaels (WO 93/22036) as applied to claim 6 above, and further in view of Zhang et al (6,586,638).**

In regard to claims 7 and 8, Nielsen and Michaels do not disclose heating the strip solution to a temperature which is higher than that of the beverage prior to contacting the strip solution with the membrane.

Zhang discloses process for removing and recovering one or more unassociated phenolic compounds dissolved in aqueous fluid (Abstract). Zhang discloses "the aqueous fluid and/or the alkaline stripping solution of the present invention may be heated before or during contact with the membrane. The aqueous fluid and/or the alkaline stripping solution of the present invention may have a temperature above room temperature (25°C). This may increase the rate of mass transfer across the non-porous membrane" (Col. 8 bottom paragraph - Col. 9 top paragraph) .

One of ordinary skill in the art would have been motivated to modify Nielsen and Michaels in view of Zhang and to heat the strip solution to a temperature which is higher than that of the beverage prior to contacting the strip solution with the membrane for the benefits as disclosed by Zhang. One of ordinary skill in the art would have been motivated to do so, since Zhang discloses heating stripping solution in order to increase the rate of mass transfer across the membrane.



Art Unit: 1794

**Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen (WO 92/08783) in view of Michaels (WO 93/22036) as applied to claim 6 above, and further in view of Zhang et al (6,586,638) in view of Tonelli et al (5,997,745).**

In regard to claims 13 and 14, Nielsen and Michaels are silent as to the removal of carbon dioxide and/or oxygen from the water or raw permeate prior to contacting the membrane. Tonelli et al discloses removal of carbon dioxide and other gases from the permeate prior to contacting with membrane in order to produce purified product that does not cause drastic changes in pH (Col. 7 paragraph 4; Col. 12 bottom paragraph). One of ordinary skill in the art would have been motivated to modify Nielsen and Michaels in view of Tonelli et al and to remove carbon dioxide and other gases (including oxygen) from the permeate prior to contacting with membrane in order to produce purified product that does not cause drastic changes in pH as taught by Tonelli et al.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VERA STULII whose telephone number is (571)272-3221. The examiner can normally be reached on 7:00 am-3:30 pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The

Art Unit: 1794

fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vera Stulii/  
Examiner, Art Unit 1794

/Keith D. Hendricks/

Supervisory Patent Examiner, Art Unit 1794